

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
14 July 2005 (14.07.2005)

PCT

(10) International Publication Number
WO 2005/063170 A2

(51) International Patent Classification⁷: **A61K**

(21) International Application Number: **PCT/JP2004/019846**

(22) International Filing Date: 28 December 2004 (28.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/532,723 29 December 2003 (29.12.2003) US

(71) Applicant (for all designated States except US): **TOUDAI TLO, LTD.** [JP/JP]; 3-1, Hongou 7-chome, Bunkyo-ku, Tokyo, 1130033 (JP).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MORIMOTO, Chikao** [JP/JP]; 5-25-16, Matsubara, Setagaya-ku, Tokyo, 1560043 (JP). **OHNUMA, Kei** [JP/JP]; 5-1-37, Hiroo, Shibuya-ku, Tokyo, 1560043 (JP).

(74) Agents: **SHIMIZU, Hatsuhi et al.**; Kantetsu Tsukuba Bldg. 6F, 1-1-1, Orosi-machi, Tsuchiura-shi, Ibaraki, 3000847 (JP).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/063170 A2

(54) Title: METHODS OF IDENTIFYING IMMUNOREGULATORY AGENTS, IMMUNOREGULATORY AGENTS, AND USES THEREOF

(57) Abstract: The present invention provides methods of identifying a substance that down-regulates or up-regulates an immune response and kits used for the identification methods. A method of this invention comprises detecting a substance that inhibits or enhances the interaction between CD26 and caveolin-1. Another method comprises detecting a substance that inhibits or enhances the interaction between caveolin-1 and Tollip. Still another method comprises detecting a substance that inhibits or enhances the interaction among caveolin-1, Tollip, and IRAK-1. The present invention also relates to immunoregulatory agents comprising a substance that down-regulates an immune response, such as siRNA against caveolin-1 or Tollip. The invention further provides immunoregulatory agents comprising a substance that up-regulates an immune response. These agents are useful for treating inflammatory diseases, autoimmune diseases, or other immune-mediated disorders.